

Our Perspective

Electric Cooperatives of the Desert Southwest

Looking Out for You: *Growth Implications*

One of a Series of Reports Covering:

- *Growth Implications*
- *Rate Increases*
- *Climate Change and the Rush to Renewable Energy*



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Who We Are

Electric cooperatives in the Desert Southwest include: Anza Electric Cooperative, Anza, California; Duncan Valley Electric Cooperative, Duncan, Arizona; Graham County Electric Cooperative, Pima, Arizona; Mohave Electric Cooperative, Bullhead City, Arizona; Navopache Electric Cooperative, Lakeside-Pinetop, Arizona; Sulphur Springs Valley Electric Cooperative, Willcox, Arizona; and Trico Electric Cooperative, Marana, Arizona.

In addition, three cooperatives (Arizona Electric Power Cooperative, Sierra Southwest Cooperative Services and Southwest Transmission Cooperative, all headquartered in Benson) comprise the Arizona Generation and Transmission cooperatives.

We Are Responding to Consumer Concerns

The electric cooperatives are responding to issues the boards of directors and management are facing today and forecast for the future. As Glenn English, the chief executive officer of the National Rural Electric Cooperative Association, announced in early 2008, "With a shortage of electric capacity, huge increases in demand for power, and the cost of climate change, we have the making of a perfect storm."

Many of these concerns have been voiced by cooperative members. However, many cooperative members are unaware of the issues facing the electric cooperatives and how those issues can impact their own personal budgets.

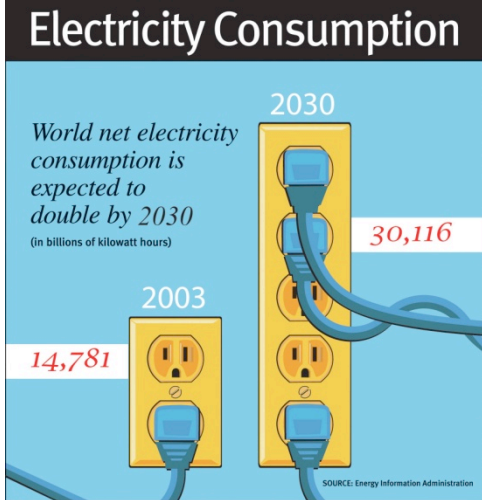
These issues include growth implications, rate increases, climate change and the rush to renewable energy. The cooperatives have developed three documents that examine these issues.

This document examines the growth implications issue.

Are Co-ops Growing?

Historical Trends

Both in terms of numbers of consumers, energy consumed by the members and the peak demand for energy, cooperatives are growing. This is not unique for the cooperatives in the Desert Southwest or the rest of the electric utility industry across the United States. In addition, rapid growth and demand for energy is occurring on a global level.



Since 1970, overall electricity demand in the U.S. has increased 136 percent. The growth in the Desert Southwest is higher as the chart below shows the percentage growth in kilowatt hours over a ten year period.

National kWh Growth Rate – 1996-2006	All Arizona Utilities kWh Growth Rate – 1996-2006
18.3 %	40.6 %

Individual distribution cooperatives have had varying growth rates. As the chart below indicates some systems have had minor growth while others have experienced growth over the past ten years in excess of 50 percent.

Distribution Cooperative	Historical kWh Growth Rate – 1997-2007
Anza Electric Cooperative	42 %
Duncan Valley Electric Cooperative	31 %
Graham County Electric Cooperative	NA
Mohave Electric Cooperative	10 %
Navopache Electric Cooperative	49 %
Sulphur Springs Valley Electric Cooperative	72 %
Trico Electric Cooperative	92 %

Forecasts

Growth for the U.S. and the Desert Southwest is going to continue. The Energy Information Administration projects the national demand for electricity will grow 40 percent between 2005 and 2030.

The electric industry's capacity to generate power will increase only 8.5 percent between 2005 and 2030. – North American Reliability Corporation.

The forecast for growth for the Desert Southwest cooperatives is not expected to slacken.

Distribution Cooperative	Projected Growth Rate (according to the cooperative's latest study)
Anza Electric Cooperative	25 % by 2015 and 45 % by 2027
Duncan Valley Electric Cooperative	1.6 % annually
Graham County Electric Cooperative	NA
Mohave Electric Cooperative	68 % by 2026
Navopache Electric Cooperative	3 % annually
Sulphur Springs Valley Electric Cooperative	32 % from 2007-2017
Trico Electric Cooperative	6 % annually

This growth is a result of additional consumers and the fact that both new and existing consumers are using more electricity. Population growth is evident as new subdivisions pop up in new areas. Many of these new homes are much larger than the homes built 20 years ago. Arizona Public Service studies indicate a 50 percent increase in the size of homes over the past 30 years. That translates into larger heating and cooling loads. One example of existing customers using more power is the power use of the newer high definition television sets that are becoming more popular—typically, they use twice the electricity as the television sets they replaced. Another example is the number of computers, printers, cell phone charges and other electronic components not found in the home 30 years ago.

This projected growth means additional power will be needed soon. The Arizona Generation and Transmission Cooperatives predict they will need an additional 275 megawatts of power by 2015 to meet the needs of the consumers.

What Does Growth Mean to the Co-ops?

Growth means utilities need additional power generation, transmission facilities, financing to build those facilities and personnel to operate those facilities.

Need for Additional Generation

There are a number of influences that are causing cooperatives to re-think their traditional process of meeting the generation needs of the consumers. Fuel costs, construction costs, proposed federal legislation and renewable energy requirements are some of the factors contributing to the new thought processes.

The old model that was used for decades would encourage a utility to build a power plant whenever they needed additional generation capacity. As a result, a utility entered a cycle where it either had too much power generation capacity since they had just built a plant or were seeking ways to hold down power use since they were waiting on

a power plant to be completed. Utilities across the country are now rethinking that approach.

The new model is to join with other utilities to jointly build capacity so they don't experience the swings in excess or insufficient generation associated with the old model.

Cooperatives are taking the lead in such a joint effort. The Arizona Generation and Transmission Cooperatives have spearheaded the formation of the Southwest Public Power Resources Group (SPPR Group).

SPPR Group is an association of approximately 40 not-for-profit electric utilities, including cooperatives, municipalities, tribal power authorities, and irrigation and electrical districts, located in Arizona, southern California and southern Nevada. SPPR Group allows its members to jointly identify and develop a variety of electric power supply projects, aggregate power purchases, and provide other related services to achieve economies of scale and efficiencies not obtainable by individual members.

Fuel Costs

The same thing that is happening at the gas pump is happening to utilities – regardless of whether they are generating with natural gas, coal or oil. Fuel costs are up. Projections of what those costs are going to be in the future are shaping the decisions being made by utility executives as they plan for the future.

Natural gas costs are expected to be higher mainly due to the demand for the fuel. Coal costs are expected to be higher because of rail costs, increased demand and due to potential carbon taxes being considered by Congress. No utility in Arizona uses oil to generate power, however, as many utility executives note the energy content of any fossil fuel (British thermal units) is tied to the prices of others.

Renewables

The Arizona Corporation Commission (ACC) has mandated a portion of the cooperatives' (except Anza Electric Cooperative) generation be derived from renewable energy resources which generally are more expensive than conventional resources. The ACC rules associated with the renewable requirements are called the Renewable Energy Standard and Tariff, commonly referred to as the REST Rules.

Need for Additional Transmission

Transmission systems (lines and substations) connect generation to the consumers.

As new consumers are added to the utility's distribution system, new electrical substations will have to be built. The substations will require new transmission lines. In the same way, new power generation plants require new transmission lines to connect them into the existing system.

The transmission construction plan that cover years 2005 through 2010 for Arizona's Generation and Transmission Cooperatives includes combined system dollars of \$75 million (or about \$15 million a year). Capital projects in the plans include new substations, new lines, upgrades to substations, upgrades to lines, communications, and routine line and substation replacements.

- Anza Electric Cooperative has plans to spend \$1.3 million in the next several years for a new line to a new substation and other equipment.
- Navopache Electric Cooperative plans to spend \$2.5 million on transmission projects in the next several years.
- Trico Electric Cooperative has nearly \$123 million of new projects in their construction work plan for the next five years.

Obtaining rights-of-way to locate those transmission facilities is becoming harder and more expensive.

Few people want a transmission line on their property. The majority of land owners fall into the NIMBY or BANANA groups—Not In My Back Yard or Build Absolutely Nothing Anywhere Near Anyone/Anything.

Those that do allow facilities on their property are seeking higher payments.

Cooperatives are seeking special utility corridors be identified early in land development efforts to mitigate the impacts later in the development process. Likewise, in Arizona, they are seeking better response from the Arizona State Land Department to their efforts to construct facilities on state land. The approval process can take 18 months to 3 years, depending on the site or route of the line.

Need for Additional Materials

The growth in the number of consumers means a utility needs more poles, conductor wire and all of the associated components that make up the delivery system. Traditionally, the utility has in place policies that specify if those costs are borne by the new customer or some portion of the costs are included in the base costs paid by all consumers. The ACC has begun a process of requiring all growth costs be paid by those causing the growth.

The growth of utility systems in "emerging" nations, notably China and India, is affecting the availability and costs of basic electrical components, such as conductors, transformers and meters. Even the cost and availability of concrete and steel is being affected. Delivery for transformers has stretched to nearly a year compared to four-to-six weeks just several years ago.

The cooperatives in the Desert Southwest have set up a committee to see where joint purchases can alleviate high costs and delivery issues.

Need for Additional Financing

The power generation needs and transmission system improvements will require additional financing. All Arizona cooperatives must obtain ACC approval to expand their debt load to construct these facilities. The process for ACC approval can become a hindrance in those situations where time is of the essence. Lengthy approval periods can mean higher costs and delays for needed facilities.

Environmental groups are putting pressure on the financing sources to keep them from providing funds for certain types of generating plants.

Need for Additional Personnel

There is a lack of trained employees in many fields that utilities are seeking. Among those fields are electrical engineers and line staking personnel. Other positions in short supply include line workers and meter technicians.

Nationally, more than half of all utility workers will be eligible for retirement in the next 10 years.

The shortage in personnel means utilities are increasing wages in attempts to attract and keep employees. Signing bonuses have become the norm for some utilities.

Cooperatives are encouraging high school students to consider these fields. Cooperatives are sponsoring line rodeos for students enrolled at line worker schools, typically junior colleges, in hopes of enticing entry level workers.

What Does Growth Mean to the Members?

New generation and transmission facilities are going to have to be paid for and those costs are going to find their way to customer's bills. Utilities are banding together to solve their generation and transmission needs in hopes of minimizing the impact to their consumers.

Utilities around the country are investing in renewable energy resources. Unfortunately, the renewable resources supply less than one percent of the power needs in the U.S. If those resources increase dramatically in the next several years, they will have a major impact on the cost of power, making it more expensive for consumers.

Higher costs for basic electrical components have increased and utilities are refining their long range planning efforts to see that materials are available when needed. Some construction will have to be delayed pending delivery of materials.

Financing for the generation and transmission growth, if delayed, could impact costs.

Higher costs associated with employees in short supply are impacting utility costs. Continued hiring problems could adversely impact utility operations.

What Does the Future Hold?

Utility executives don't think the pressures driving costs up are going to get better anytime soon.

Cooperatives, managed by professional staffs which are directed by boards of elected consumers, are providing a voice to the issues so the consumers are informed. Electric cooperatives are urging lawmakers to keep in mind that electric power is not a luxury. It is a necessity.

Cooperatives see higher costs as a problem in maintaining their core value—looking out for the member-consumers by providing safe, reliable electricity at the lowest possible cost.

Already, we have a significant number of member-consumers who struggle to pay their electric bills. The reality facing our industry is that even more members will be unable to afford electric power. – Glenn English, CEO, National Rural Electric Cooperative Association

Summary

Growth is impacting utilities with higher costs and delays. Cooperatives are working together with others to plan for needed generation. Shortages in materials and personnel, coupled with higher construction and fuel costs, are driving electricity prices higher.